## Documentation of Environmental Indicator Determination

Interim Final 2/5/99

## RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA725)

#### **Current Human Exposures Under Control**

| Facility Name:     | Eli Lilly and Company, Tippecanoe Laboratories |  |  |  |
|--------------------|------------------------------------------------|--|--|--|
| Facility Address:  | 1650 Lily Road Shadeland, IN 47905             |  |  |  |
| Facility EPA ID #: | IND 006 050 967                                |  |  |  |

Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

X

If yes - check here and continue with #2 below.

If no - re-evaluate existing data, or if data are not available skip to #6 and enter"IN" (more information needed)

status code.

### **BACKGROUND**

## **Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

### Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

#### Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater- use conditions ONLY, and do not consider potential future land- or groundwater- use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

## **Duration / Applicability of EI Determinations**

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

## Current Human Exposures Under Control Environmental Indicator (EI) RCRIS code (CA725)

Page 1

2. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be "
contaminated" above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

|                             | Yes | . <u>No</u> | ? | Rationale / Key Contaminants                   |
|-----------------------------|-----|-------------|---|------------------------------------------------|
| Groundwater                 | Х   |             |   | acetone, benzene, toluene, chloroform, 1,2-DCA |
| Air (indoors) <sup>2</sup>  |     | Х           |   |                                                |
| Surface Soil (e.g., <2 ft)  |     | х           |   |                                                |
| Surface Water               |     | х           |   |                                                |
| Sediment                    |     | Х           |   |                                                |
| Subsurf. Soil (e.g., >2 ft) |     | х           |   |                                                |
| Air (outdoors)              |     | X           |   |                                                |

If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded. X

If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing

supporting documentation.

If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s): Ground water beneath the main manufacturing area contains acetone (1 to 40 ppm range), benzene (around 40 ppm), chlorobenzene (about 0.5 ppm), chloroform (around 0.04 ppm), 1,2- DCA (about 1 ppm), methylene chloride (about 65 ppm), and toluene (around 0.05 ppm). The contaminated ground water is presently captured by extraction wells and a slurry wall-interceptor well system. REFERENCES: T309/T310 Post Closure Ground Water Monitoring Reports, Eli Lilly & Co., 1992-2000. Quarterly Facility Ground Water Monitoring Reports, Harza Engineering Co., 1998-2000.

## **Current Human Exposures Under Control** Environmental Indicator (EI) RCRIS code (CA725)

Page 2

Are there complete pathways between "contamination" and human receptors such that exposures can be 3. reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential Human Receptors (Under Current Conditions)

| "Contamina | ited" Media - R    | Lesidents   | Workers D | ay-Care | Construction | on Trespassers | Recreation Fo | od <sup>3</sup> |   |
|------------|--------------------|-------------|-----------|---------|--------------|----------------|---------------|-----------------|---|
|            | Groundy            | vater       | n         | n       | n            | n              |               |                 | n |
|            | Air (indoors)      |             |           |         |              |                |               | ,               |   |
|            | Soil (surface, e.g | ;., <2 ft)  |           |         |              |                |               |                 |   |
|            | Surface Water      |             |           |         |              |                |               |                 |   |
|            | Sediment           |             |           |         |              |                |               |                 |   |
|            | Soil (subsurface   | e.g., >2 ft | )         |         |              |                |               |                 |   |
|            | Air (outdoors)     |             |           |         |              |                |               |                 |   |

Instructions for Summary Exposure Pathway Evaluation Table:

- 1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated" as identified in #2 above.
- 2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media - Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media -Human Receptor combinations (Pathways) do not have check spaces ("\_\_\_"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

X

If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code.

Rationale and Reference(s): Contaminated ground water is captured by extraction wells and an interceptor well slurry wall system. REF. "Final Report for Seepage Collection and Contamination Mitigation", Eli Lilly & Co., 1995; "T309/T310 Post-Closure Ground water Monitoring Reports", Eli Lilly & Co., 1992-2000; Quarterly Ground Water Monitoring Reports, Harza Engineering Co., 1998-2000

4. Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be "significant "4 (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could

## Current Human Exposures Under Control Environmental Indicator (EI) RCRIS code (CA725) Page 3

result in greater than acceptable risks)?

If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be " significant."

If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

## Current Human Exposures Under Control Environmental Indicator (EI) RCRIS code (CA725) Page 4

5. Can the "significant" exposures (identified in #4) be shown to be within acceptable limits?

If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

### Current Human Exposures Under Control Environmental Indicator (EI) RCRIS code (CA725) Page 5

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

| YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review |
|----------------------------------------------------------------------------------------|
| of the information contained in this EI Determination, "Current Human Exposures" are   |
| expected to be "Under Control" at the _Eli Lilly and Co., Tippecanoe                   |
| Laboratories facility, EPA ID # IND 006 050 967_, located at Shadeland, Indiana        |
| under current and reasonably expected conditions. Th                                   |
| determination will be re-evaluated when the Agency/State becomes aware of significant  |
| changes at the facility.                                                               |

NO - "Current Human Exposures" are NOT "Under Control."

IN - More information is needed to make a determination.

| Completed by | (signature) |                         | Date | 10-10-00 |
|--------------|-------------|-------------------------|------|----------|
|              | (print)     | Donald A. Heller        |      |          |
|              | (title)     | Environmental Scientist |      |          |

| Supervisor | (signature) |                                  |    | Date | 11-13-00 |
|------------|-------------|----------------------------------|----|------|----------|
| -          | (print)     | Hak K. C                         | ho |      |          |
|            | (title)     | Chief, Corrective Action Section |    |      |          |
|            | (EPA Regio  | or EPA Region 5                  |    |      |          |
|            | State)      |                                  |    |      |          |

## Locations where References may be found:

Final Report for Seepage Collection and Contaminant Mitigation, Eli Lilly & Co., 1995 T309/T310 Post Closure Ground Water Monitoring Reports, Eli Lilly & Co., 1992-2000 Quarterly Facility Ground Water Monitoring Reports, Harza Engineering Co., 1998-2000

Contact telephone and e-mail numbers

| (name)    | Donald A. Heller      |
|-----------|-----------------------|
| (phone #) | (312) 353-1248        |
| (e-mail)  | Heller.Donald@EPA.GOV |

final Note: The Human Exposures EI is a Qualitative Screening of exposures and the determinations within this document should not be used as the sole basis for restricting the scope of more detailed (e.g., site-specific) assessments of risk.

completed 1-15-04

#### DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

## RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA750)

#### Migration of Contaminated Groundwater Under Control

| Facility Name: Facility Address: |                | Eli Lilly and Company, Tippecanoe Laboratories                                                                                                                                                                                                             |  |  |
|----------------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|                                  |                | 1650 Lilly Road, Shadeland, IN 47905                                                                                                                                                                                                                       |  |  |
| Facility I                       | EPA ID#:       | IND 006 050 967                                                                                                                                                                                                                                            |  |  |
| g                                | roundwater med | relevant/significant information on known and reasonably suspected releases to the dia, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units ated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination? |  |  |
|                                  | <u>X</u>       | If yes - check here and continue with #2 below.                                                                                                                                                                                                            |  |  |
|                                  | <u></u>        | If no - re-evaluate existing data, or                                                                                                                                                                                                                      |  |  |
|                                  |                | if data are not available skip to #6 and enter"IN" (more information needed) status code.                                                                                                                                                                  |  |  |

#### **BACKGROUND**

### **Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

#### Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

#### Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

## **Duration / Applicability of EI Determinations**

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

| 2. | Is groundwater known or reasonably suspected to be "contaminated" above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility's                                                                                                                                                                                                                                             |  |  |  |  |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
|    | X If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |  |
|    | If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |  |
|    | If unknown - skip to #8 and enter "IN" status code.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |  |  |  |
|    | Ground water directly beneath the manufacturing plant is contaminated by acetone (5.8 mg/L), benzene (17.4 mg/L), chlorobenzene (0.974 mg/L), toluene (0.163 mg/L), and lesser concentrations of chloroform, ethylbenzene, vinyl chloride and xylenes. Decreasing concentrations of these compounds occur in outwardly migrating ground water plumes, which decrease to non-detect within the Lilly property. Presently, the applicable ground water protection standards may be either the MCLs or the U.S. EPA Region 9 Preliminary Remediation Goals (PRGs). |  |  |  |  |
| -  | REFERENCES:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |
|    | 1989. Phase E Site Assessment Report, Harza Engineering Co.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |

1995. Final Report for Seepage Collection and Contaminant Mitigation, Eli Lilly &

1992-2003. T309/T310 Post Closure Ground Water Monitoring Reports, Eli Lilly

1998-2003. Quarterly Facility Ground Water Monitoring Reports, Harza Engineering Co.

2000. Wabash River Sampling Results, Eli Lilly & Co.

2002. Response to Scope of RFI Activities, Eli Lilly & Co.

2003 Report of Sediment Characterization in Wabash River and Big Wea Creek, Eli Lilly & Co.

2003 Addendum to Report of Sediment Characterization in Wabash River and Big Wea Creek, Eli Lilly & Co.

<sup>&</sup>lt;sup>1</sup> "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

Has the migration of contaminated groundwater stabilized (such that contaminated groundwater is

|   | -               | ain within "existing area of contaminated groundwater" as defined by the monitoring                                                                                                                                                                                                                                         |
|---|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | ocations design | ated at the time of this determination)?                                                                                                                                                                                                                                                                                    |
|   |                 | ;                                                                                                                                                                                                                                                                                                                           |
|   | <u>X</u>        | If yes - continue, after presenting or referencing the physical evidence (e.g., groundwate sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination" <sup>2</sup> ). |

If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination" - skip to #8 and enter "NO" status code, after providing an explanation.

If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

3.

The highest concentrations of ground water contamination occur beneath the manufacturing plant portion of the facility, which is constructed on a steep terrace which overlooks the Wabash River. Within this area, Lilly operates sixteen recovery wells which extract contaminated ground water, which is pumped to the facility WWTP. From 1992 to 2003, analysis of the extracted ground water has shown significant decreases of contaminant levels. The most substantial migrating plume of contamination occurs to the north of the plant, moving beneath the bluff and toward the Wabash River. In 1995, Lilly completed the installation of an interceptor system, which consists of a slurry wall, gravel-filled capture trench, and a series of extraction wells. Some contamination apparently escapes this system, and is detected at decreasingly lower concentrations beneath the floodplain. During the summer of 2000, Lilly sampled Wabash River water from the top of the ground water/surface water interface, and analyzed the samples for the compounds detected in the ground water. All samples were non-detect. During 2003, sediment samples from the Wabash River and Big Wea Creek were analyzed for semivolatile organic compounds which may have accumulated in the sediment from the discharge of contaminated ground water. The analytical results were non-detect.

<sup>&</sup>lt;sup>2</sup> "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

| 4. | Does "contamina  | ated" groundwater discharge into surface water bodies:                                                                                                                                                                |
|----|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <u>X</u>         | If yes - continue after identifying potentially affected surface water bodies.                                                                                                                                        |
| ,  | ·<br>            | If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies. |
|    |                  | If unknown - skip to #8 and enter "IN" status code.                                                                                                                                                                   |
|    | Rationale and Re | ference(s):                                                                                                                                                                                                           |

Given the local topography, location of the Lilly facility, and ground water flow directions, it can be assumed that ground water discharges into the Wabash River. However, the river water sampling exercise indicates that ground water which meets the definition of "contaminated" does not discharge into the Wabash River.

A tributary of the Wabash River, known as the Big Wea Creek, runs to the south of the Lilly facility. Facility-wide ground water monitoring indicates a low-concentration plume of contamination migrates toward this creek. Although ground water most likely discharges into the creek, the contaminant concentrations within the plume diminish from single-digit ppb levels to non-detect before reaching the stream.

| 5. | Is the discharge of "contaminated" groundwater into surface water likely to be "insignificant" (i.e., the maximum concentration <sup>3</sup> of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)? |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|    | <u>X</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration <sup>3</sup> of <u>key</u> contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and it there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.                                                                                                                                                                      |  |
|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration <sup>3</sup> of <u>each</u> contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing. |  |
|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | If unknown - enter "IN" status code in #8.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|    | Rationale and R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | eference(s):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |

Please refer to the rationale presented in Item #4.

<sup>&</sup>lt;sup>3</sup> As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

| 6. | Can the discharge of "contaminated" groundwater into surface water be shown to be "currently               |
|----|------------------------------------------------------------------------------------------------------------|
|    | acceptable" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed |
|    | to continue until a final remedy decision can be made and implemented <sup>4</sup> )?                      |

| X             | If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment, <sup>5</sup> appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interimassessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination. |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| . <del></del> | If no - (the discharge of "contaminated" groundwater can not be shown to be "currently acceptable") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|               | If unknown - skip to 8 and enter "IN" status code.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| le and De     | forence(s). Please refer to the rationals presented in Item #4 and the referenced provided in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Rationale and Reference(s): Please refer to the rationale presented in Item #4 and the referenced provided in Item #2.

<sup>&</sup>lt;sup>4</sup> Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

<sup>&</sup>lt;sup>5</sup> The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

| 7. | necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?" |                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|    | <u>X</u>                                                                                                                                                                                                    | If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination." |  |
|    |                                                                                                                                                                                                             | If no - enter "NO" status code in #8.                                                                                                                                                                                                                                                                                                                                                                                 |  |
|    | · ·                                                                                                                                                                                                         | If unknown - enter "IN" status code in #8.                                                                                                                                                                                                                                                                                                                                                                            |  |
|    | Rationale and Re                                                                                                                                                                                            | eference(s):                                                                                                                                                                                                                                                                                                                                                                                                          |  |

A confirmatory sampling exercise for semivolatile organic compounds (SVOCs) in sediments from both the Wabash River and the Big Wea Creek was conducted in 2003. Analytical results proved non-detect, with acceptable detection limits as compared with Region 5 environmental screening levels. Within the manufacturing plant area, ground water monitoring continues for units closed under State of Indiana oversight. Although the U.S. EPA and Lilly will discuss the scope of future facility-wide ground water monitoring, both parties recognize the need for the continued monitoring of areas known to be contaminated, until decisions are made following risk assessment and corrective measures studies. Please refer to the references listed in the response to Item #2.

| 8. | Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility). |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                    |  |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|    | <u>X</u>                                                                                                                                                                                                                                                                                                    | YE - Yes, "Migration of Contaminated Groundwater verified. Based on a review of the information contadetermination, it has been determined that the "Migra Groundwater" is "Under Control" at the Eli Lilly and Laboratories facility, EPA ID # IND 006 050 967, Shadeland, IN. Specifically, this determination indi "contaminated" groundwater is under control, and the conducted to confirm that contaminated groundwater "existing area of contaminated groundwater" This deevaluated when the Agency becomes aware of significant si | ation of Contaminated d Co. Tippecanoe located at 1650 Lilly Road, cates that the migration of at monitoring will be r remains within the etermination will be re- |  |
|    |                                                                                                                                                                                                                                                                                                             | NO - Unacceptable migration of contaminated ground                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | indwater is observed or expected.                                                                                                                                  |  |
|    | <del></del>                                                                                                                                                                                                                                                                                                 | IN - More information is needed to make a determine                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | nation.                                                                                                                                                            |  |
|    | Completed by                                                                                                                                                                                                                                                                                                | (signature) Forall A. Heller (print) Bonald A. Heller (title) Environmental Scientist                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Date <u>5-16-03</u>                                                                                                                                                |  |
|    | Supervisor                                                                                                                                                                                                                                                                                                  | (signature) (print) Hak K. Cho (title) Chief, Corrective Action Section (EPA Region or State) U.S. EPA Region 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Date                                                                                                                                                               |  |
| ·  | 1989. Phase E S<br>1995. Final Rep<br>1992-2003. T3<br>1998-2003. Qu<br>2000. Wabash F<br>2002. Response<br>2003 Report of S<br>Co.                                                                                                                                                                         | References may be found: Site Assessment Report, Harza Engineering Co. Boort for Seepage Collection and Contaminant Mitigation Site Assessment Report, Harza Engineering Co. Boort for Seepage Collection and Contaminant Mitigation Seeparterly Facility Ground Water Monitoring Reports. Have Facility Ground Water Monitoring Reports. Have Sampling Results. Eli Lilly & Co. Boto Scope of RFI Activities. Eli Lilly & Co. Bediment Characterization in Wabash River and Big Vanto Report of Sediment Characterization in Wabash R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | orts. Eli Lilly & Co.<br>rza Engineering Co.<br>Vea Creek, Eli Lilly &                                                                                             |  |

Contact telephone and e-mail numbers

## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 5

# WASTE, PESTICIDES, AND TOXICS DIVISION WASTE MANAGEMENT BRANCH (\*\*\*-8J)

DW

77 WEST JACKSON BOULEVARD CHICAGO, ILLINOIS 60604

## FAX (312) 353-4788 VERIFICATION (312) 886-5820

| TO: _   | LUCY S. WANG                                   |
|---------|------------------------------------------------|
|         | ELI LICLY AND CO. TIPPECANOE                   |
| FAX NU  | MBER: (765) 477- 4798                          |
| VERIFI( | CATION NUMBER:                                 |
| OFFICE  | PHONE: (765) 477 - 4361                        |
| FROM:   | DON HELLER                                     |
| 0F: _   | CORRECTIVE ACTION SECTION                      |
|         | PHONE: (312) 353-1248                          |
|         | 1-20-04                                        |
| NUMBER  | OF PAGES (INCLUDING COVER SHEET):              |
| REMARK  | S:                                             |
| ·       | THE EVENTS ACHIEVED DATES IN OUR DATABASE ARE: |
|         | E1725 YES 11-13-00                             |
|         | E1 750 YES 5-16-03                             |

The attached E1750 narrative has been revised to include the svoc

sampling results for wabash and Big Wea sediments, last summer.